

5

8. The method of claim 1, wherein the concentration is 0.01 nanograms per ml to 30 nanograms per ml.
- 10 9. The method of claim 1, wherein the human zona pellucida protein 3, or the sperm, is fixed on a matrix.
- 15 10. A method to determine sperm activity comprising the steps of (a) contacting an appropriate concentration of human zona pellucida protein 3 with an appropriate amount of sperm under conditions permitting an acrosome reaction to occur; and (b) determining the extent of the acrosome reaction.
- 20 11. The method of claim 10 wherein the concentration of the human zona pellucida protein 3 is 0.01 nanograms per ml to 10,000 nanograms per ml.
- 25 12. The method of claim 10 wherein the concentration is 0.01 nanograms per ml to 5,000 nanograms per ml.
- 30 13. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 2,500 nanograms per ml.
- 35 14. The method of claim 10, wherein the concentration is 0.01 nanograms per ml to 1,000 nanograms per ml.

5       15. The method of claim 10, wherein the  
concentration is 0.01 nanograms per ml to 500  
nanograms per ml.

10      16. The method of claim 10, wherein the  
concentration is 0.01 nanograms per ml to 100  
nanograms per ml.

15      17. The method of claim 10, wherein the  
concentration is 0.01 nanograms per ml to 30  
nanograms per ml.

20      18. The method of claim 10, wherein the human zona  
pellucida protein 3 or the sperm is fixed on a  
matrix.

25      19. A diagnosis kit for sperm activity comprising  
compartments with (a) an appropriate amount of  
human zona pellucida protein 3 and (b) the  
reagents used for establishing the conditions  
for allowing the binding of sperm.

30      20. A diagnosis kit for sperm activity comprising  
compartments with (a) an appropriate amount of  
human zona pellucida protein 3 and (b) the  
reagents used for establishing the conditions  
for allowing an acrosome reaction.

35      21. A diagnosis kit for sperm activity comprising  
three (3) compartments with (a) an appropriate  
amount of human zona pellucida protein 3; (b)  
the reagents used for establishing the  
conditions for allowing the binding of sperm;  
and (c) the reagents used for establishing the  
conditions for allowing an acrosome reaction.